Aim

To create a Pandas program that generates pivot tables to find the total sale amount by region, manager, and salesman using the provided sales data.

Algorithm

1. Import the Pandas library
2. Create a DataFrame with the given sales data
3. Convert the 'OrderDate' column to datetime type
4. Create pivot tables for total sale amount by: a. Region b. Manager c. Salesman
5. Display the results

Code

```
import pandas as pd

data = {
    'OrderDate': ['1-6-18', '1-23-18', '2-9-18', '2-26-18', '3-15-18', '4-1-18', '4-18-18', '5-5-18', '5-22-18', '6-8-18', '6-25-18', '7-12-18', '7-29-18', '8-15-18', '9-1-18', '9-18-18', '10-5-18', '10-22-18'],
    'Region': ['East', 'Central', 'Central', 'Central', 'West', 'East', 'Central', 'Central', 'West', 'East', 'Central', 'East', 'East', 'East', 'Central', 'East', 'Central', 'East'],
    'Manager': ['Martha', 'Hermann', 'Hermann', 'Timothy', 'Timothy', 'Martha', 'Martha', 'Hermann', 'Douglas', 'Martha', 'Hermann', 'Martha', 'Douglas', 'Martha', 'Douglas', 'Martha', 'Hermann', 'Martha'],
    'SalesMan': ['Alexander', 'Shelli', 'Luis', 'David', 'Stephen', 'Alexander', 'Steven', 'Luis', 'Michael', 'Alexander', 'Sigal', 'Diana', 'Karen', 'Alexander', 'John', 'Alexander', 'Sigal', 'Alexander'],
    'Item': ['Television', 'Home Theater', 'Television', 'Cell Phone', 'Television', 'Home Theater', 'Television', 'Television', 'Television', 'Home Theater', 'Television', 'Home Theater', 'Home Theater', 'Television', 'Desk', 'Video Games', 'Home Theater', 'Cell Phone'],
    'Units': [95, 50, 36, 27, 56, 60, 75, 90, 32, 60, 90, 29, 81, 35, 2, 16, 28, 64],
    'Unit_price': [1198.00, 500.00, 1198.00, 225.00, 1198.00, 500.00, 1198.00, 1198.00, 1198.00, 500.00, 1198.00, 500.00, 500.00, 1198.00, 125.00, 58.50, 500.00, 225.00],
    'Sale_amt': [113810.00, 25000.00, 43128.00, 6075.00, 67088.00, 30000.00, 89850.00, 107820.00, 38336.00, 30000.00, 107820.00, 14500.00, 40500.00, 41930.00, 250.00, 936.00, 14000.00, 14400.00]
}

df = pd.DataFrame(data)
df['OrderDate'] = pd.to_datetime(df['OrderDate'], format='%m-%d-%y')

pivot_region = pd.pivot_table(df, values='Sale_amt', index='Region', aggfunc='sum')
pivot_manager = pd.pivot_table(df, values='Sale_amt', index='Manager', aggfunc='sum')
pivot_salesman = pd.pivot_table(df, values='Sale_amt', index='SalesMan', aggfunc='sum')
```

```
print("Total Sale Amount by Region:")
print(pivot_region)
print("\nTotal Sale Amount by Manager:")
print(pivot_manager)
print("\nTotal Sale Amount by Salesman:")
print(pivot_salesman)
```

Output

```
Total Sale Amount by Region:
                Sale_amt
Region
Central        393943.00
East           286076.00
West           105424.00

Total Sale Amount by Manager:
                Sale_amt
Manager
Douglas         79086.00
Hermann        297768.00
Martha         335926.00
Timothy         73163.00

Total Sale Amount by Salesman:
                Sale_amt
SalesMan
Alexander      231076.00
David            6075.00
Diana           14500.00
John              250.00
Karen           40500.00
Luis           150948.00
Michael         38336.00
Shelli          25000.00
Sigal          121820.00
Stephen         67088.00
Steven          89850.00
```

Result

The program successfully creates pivot tables showing total sale amounts by region, manager, and salesman using Pandas DataFrame operations.